

## REMARKS

### Declaration

Applicant notes that the Declaration filed on September 6, 2005 has three pages, the names of Khalid Sayood and Hasan Otu are listed on the second page, and the name of Steven Hinrichs is listed on the third page. When the Declaration was presented to the inventors for signature, the names of all three inventors were present on the Declaration. Thus, the copy of the Declaration signed by Khalid Sayood does include the name of Steven Hinrichs. A copy of the Declaration is re-submitted along with this Reply.

### Priority

The priority claim to the provisional application 60/479,668, filed June 19, 2003 has been recognized by the Office as shown by its inclusion on the filing receipt. Applicant has amended the specification to include a reference to the provisional application.

### The 35 U.S.C. §101 Rejections

Claims 1-23 stand rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. This rejection is respectfully traversed.

In a recent Supreme Court decision, Bilski v. Kappos, 561 U.S. \_\_\_\_ (2010), the court held that the machine-or-transformation test is not the sole test for determining the patent eligibility of a process, but rather "a useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under § 101." Although Applicant has amended the claims to facilitate efficient prosecution of the application, Applicant does not concede that the original claims 1-23 are directed to non-statutory subject matter.

### The 35 U.S.C. §112 Rejections

Claims 7-9 and 17 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 provides antecedent basis for the limitation “the first nucleic acid sequence” in claim 9.

Claims 7 and 17 are definite in view of the specification. In claims 7 and 17, the “sum of all units” does not mean appending all the units together. Rather, the sum of all units means the collection of all units. The “difference between total number of units stored for the first nucleic acid sequence and the total number of units stored for the second nucleic acid sequence” does not mean removing a subsequence from a sequence. Rather, the difference refers to the subset of units for one nucleic acid sequence that does not belong to the set of units for the other nucleic acid sequence. The meaning of these phrases are clear from the four distance measures described in page 8, line 29 to page 9, line 24, and from page 11, lines 20-23, which state that the sum of the words in the dictionary for the first sequence is subtracted from the sum of the words in the dictionary for the second sequence to determine a difference that is used to determine the distance of the two sequences.

### The 35 U.S.C. §102 Rejections

Claims 1-6, 10-16 and 18-21 are rejected under 35 U.S.C. §102(b) as being anticipated by Varre et al. (Bioinformatics, volume 15, 1999, pages 194-202).

#### Claim 1

Applicant notes that Varre does not describe and would not have made obvious “if the first set of nucleotides is not within the first nucleic acid sequence, storing the first set of

nucleotides as a unit in a database in one or more storage devices for the second nucleic acid sequence” (emphasis added), as recited in amended claim 1.

In rejecting claim 2, the Examiner stated that because every nucleotide of each sequence of Figure 1 of Varre is stored in the database, the database encompasses sets of nucleotides that are not within the first nucleic acid sequence. Applicant disagrees. Varre describes a process of constructing a target sequence with segment operations (page 195, left column). The database of Varre stores the entire target sequence and source sequence, and common segments are denoted by letters within brackets (Fig. 1). Varre does not disclose or suggest comparing a set of nucleotides in the source sequence with the target sequence, and storing the set of nucleotides “as a unit” in a database if the set of nucleotides is not within the target sequence. Even though the entire source sequence may include a set of nucleotides that are not within the target sequence, Varre does not disclose or suggest storing the set of nucleotides “as a unit” in a database.

Similarly, Varre also does not disclose or suggest comparing a set of nucleotides in the target sequence with the source sequence, and storing the set of nucleotides “as a unit” in a database if the set of nucleotides is not within the source sequence.

Claim 1 is patentable for at least the above reasons.

#### Claims 10, 11, 18, and 19

Claims 10, 11, 18, and 19 are patentable for at least similar reasons as those applied to claim 1.

#### The 35 U.S.C. §103 Rejections

Claims 7-9, 17 and 22-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Varre et al. as applied to claims 1-6, 10-16 and 18-21 above, in further view of Queen et al. (Nucleic Acids Research, Volume 12, 1984, pages 581-599). This rejection is respectfully traversed.

### Claim 22

Queen does not describe and would not have made obvious “determining the difference between the number of words in the combined nucleic acid sequence and the first nucleic acid sequence to determine the distance between the first nucleic acid sequence and the second nucleic acid sequence,” as recited in claim 22.

In claim 22, the “difference between the number of words in the combined nucleic acid sequence and the first nucleic acid sequence” does not refer to removing a subsequence from a sequence. Rather, if the combined nucleic acid sequence has  $n_1$  words, and the first nucleic acid sequence has  $n_2$  words, then the difference refers to  $n_1 - n_2$ . The meaning of this phrase is clear from page 8, line 29 to page 9, line 24, and page 11, lines 20-23 of Applicant's specification.

Queen discloses deleting a subsequence from a sequence. However, this is not what the term “difference” means in claim 22.

What is missing in Queen is also not disclosed or suggested in Varre.

Claim 22 is patentable for at least the above reasons.

### Claim 23

Claim 23 is patentable for at least similar reasons as those applied to claim 22.

All of the dependent claims are patentable for at least the reasons for which the claims on which they depend are patentable.

Canceled claims have been canceled without prejudice or disclaimer.

Any circumstance in which the applicant has addressed certain comments of the examiner does not mean that the applicant concedes other comments of the examiner. Any circumstance in which the applicant has made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims. Any circumstance in which the applicant has amended or canceled a claim does not mean that the applicant concedes any of the examiner's positions with respect to that claim or other claims.

Applicant : Khalid Sayood et al.  
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The excess claims fee in the amount of \$52 is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply all charges or credits to Deposit Account No. 06-1050, referencing Attorney Docket No. 24742-0017US1.

Respectfully submitted,

Date: July 27, 2010\_\_\_\_\_

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